SHORT STUDIES IN THE CHRYSOMELIDÆ (COLEOPTERA)

By CHAS. SCHAEFFER

(Continued from Page 325, Sept. issue)

Cryptocephalus luteolus Newn.
C. defectus Lec.
C. sanfordi Blatchl.
C. sanfordensis Clav.

In "Blatchleyana" Prof. Blatchley refuses to accept the above synonymy. I have seen and examined the type of *defectus* Lec. in Cambridge and Mrs. D. Blake, while in London a few years ago, kindly sent me at my request a good description and figure of the type of *luteolus* together with some additional notes by Mr. Bryant, which leaves no doubt in my mind that the above synonymy is correct. Moreover, there is no other small *Cryptocephalus* which agrees so well with the descriptions.

Cryptocephalus bispinus Suffr.

Form of *calidus* but much larger; castaneous, head and pronotum marked as in *calidus;* elytra flavous, suture, lateral margin partly and two vittæ on each elytron black. Head finely punctate, punctures well separated; pronotum shining, sparsely and finely punctate; elytra smooth and rather shining, punctures forming the usual rows rather small but larger basally, the sixth and seventh interrupted at middle and more or less confused at their apical part. Anterior margin of prothorax below arcuate-truncate, not lobed; prosternum more or less convex at middle, impressed at sides and coarsely punctate, apex deeply emarginate, the angles prolonged and acute; ventral segments of abdomen finely not closely punctate, punctures coarser on the last segment, pygidium coarsely and closely punctate. Length: 6 mm.

Florida: Gulfport (Reynolds), Lakeland, Nov. (Davis); Georgia (Suffrian).

The description was written under the impression that it was a new species but later, going over Suffrian's descriptions,

I came to the conclusion that it was his *bispinus,* though in my three females, the elytral punctures are apparently finer than in Suffrian's specimens. It is not a synonym of *callidus.*

This species is about the same size as *gibbicollis* but more slender, the pronotum not declivous in front and the tibiæ are castaneous, reddish and apically more or less black in the latter species. One specimen has the lateral black elytral vittæ interrupted at middle.

Cryptocephalus insertus Hald.
C. calidus Suffr.

I have been quite uncertain about this species, but on close investigation it appears that Dr. Leconte's suggestion of being possibly a variation of *calidus* is correct. In a number of specimens of *calidus* examined the punctuation of pronotum, elytra, also the elytral vittæ are variable. In his table of *Cryptocephalus** Dr. Leconte separates *insertus* from *calidus* by the pronotum smooth and elytral striæ coarser and somewhat impressed in the former and pronotum feebly punctulate and elytra with fine not impressed striæ in the latter. However, Haldemann in his description of *insertus* says "pronoto polito, punctulato," of the elytra "elytris valde profunde seriatum punctatis." Accordingly there is no difference in the pronotal punctuation of the two and the only remaining one, judging from the descriptions, is whether the elytral series of punctures are fine or coarse. Apparently this is not alone a variable character but as shown in some specimens a few of the rows may consist of large punctures and the rest of fine ones in the same specimen. As the punctuation of pronotum and elytra of other species of Cryptocephalus is also more or less variable and the two extremes are connected by intermediate forms *calidus* should be made a synonym of *insertus.*

The plate extending over the posterior portion of the last ventral segment mentioned by Haldemann and thought to be a male character of *insertus* is visible not only in some males of *calidus* but also in one female. It is also present in both sexes of other species of Cryptocephalus and Anomæa.

* Trans. Am. Ent. Soc. VIII, 1880, p. 202.

Cryptocephalus albicans Hald.

This species is wrongly placed as a synonym of *gibbicollis* in the Leng catalogue. It is much narrower and more slender than the latter, the pronotum is not at all gibbous in front but is relatively feebly convex and the paler markings at best indistinct, the elytra are rather dull.

Cryptocephalus egregius new species.

Rather robust, shining, elytra yellow with eight black spots and an elongate, short, common sutural spot below the scutellum, black; pronotum largely yellow, with a large, black, elongate-oval central spot reaching base and apex, this spot is divided at middle in about apical third by a very narrow white line, on each side of the central spot is a smaller, more or less rounded, spot, connected at middle with the central spot by a narrow black line; and about equidistant between the former and the lateral margin a smaller black spot; margins narrowly black. Head yellow, clypeus, the space around the antennal insertion and a spot between the eyes above black; labrum reddish. Antennæ entirely reddish. Below black, prosternum, mesosternum at middle, first ventral segment between the posterior coxæ yellow and a spot on each side of the last ventral segment and legs reddish. Head on each side with a few moderate punctures. Pronotum, seen from above narrowed apically; lateral margins straight behind and feebly, arcuately narrowing to apex; surface sparsely punctate, a little more closely apically at middle, the black lateral markings and elongate central spot apically very finely rugulose. Elytral series of punctures moderate, not coarse; the black markings on each elytron consist of an elongate, common, sutural mark of irregular outline, a spot on umbo and two below this latter, an elongate, oblique, subbasal mark, a large mark near suture occupying more or less the first three intervals, a spot slightly higher situated between the fifth and seventh or eighth row of punctures and two subapical spots. Prosternum lobed at base, at apex broadly, arcuately emarginate, lateral angles not prolonged nor acute, but rather broadly rounded. Mesosternum narrowing from apex to base, apical margin shallowly emarginate, angles prolonged. Ventral segments moderately coarsely punctate. Pygidium coarsely rugosely punctate. Length: 5.25 mm.

Ft. Valley, Georgia, (Scott and Fiske) type; Calvert, Texas.

Type in National Museum collection, paratype in my collection.

By the peculiar markings of the pronotum, the prosternum at apex between the coxæ arcuately emarginate with lateral angles not prolonged, but somewhat rounded and mesosternum between the coxæ not straight and parallel-sided but distinctly narrowing

from apex to base with apical angles prolonged this new species will be readily known. In the paratype the small spot next to the large central one of the pronotum is free and not connected with the latter.

Cryptocephalus simulans conjungens new variety.

Form, size and sculpture of *simulans* from which it differs in having the large, castaneous central space of pronotum more or less broadly connected with the small lateral spot, producing a different lateral outline—in typical *simulans* the large, dark central space is apparently never connected with the small lateral spot and its lateral margin is more or less broadly emarginate—the color of the elytral markings is castaneous—black in *simulans* the second elytral interval is usually entirely of that color, the postscutellar sutural dark mark is at best faintly indicated and the metasternum and abdomen are more uniformly castaneous.

Chisos Mts., Brewster Co., Texas (Mitchell and Cushman).

Type and paratypes in National Museum collection and paratypes in my collection.

The different locality and the differences noted above which appear to be constant in the twelve specimens I have seen entitle this form to a separate name.

The serial punctures of the elytra in this form are usually larger but that is variable in both as is the punctuation of pronotum.

Cryptocephalus simulans eluticollis new variety.

Pronotum fulvous on the disk, anteriorly, laterally and two rather faint, oblique basal spots very slightly paler, near lateral margin at middle a small, dark spot; body below entirely fulvous; markings on elytra slightly reduced, the elongate, postscutellar sutural mark and the dark spot below middle on the second interval absent. Length: 5 mm.

Hot Springs, Arizona, (Barber and Schwarz).

Type and paratype in National Museum collection, and a paratype in my collection.

The prothorax in this form can almost be called unicolorous flavous, with a small black spot near the lateral margin at middle.

A specimen of *simulans* from the Santa Rita Mts., Arizona, in the National Museum collection is much paler than the typical form and has the reduced markings and pale underside of the

above described form but the pale anterior and lateral margins and the oblique subbasal marks of prothorax are rather sharply defined.

Cryptocephalus snowi new species.

Form elongate, color below including legs, dark reddish, prosternum, first ventral segment at middle and a spot on each side of last ventral segment and pygidium yellow; head yellow with a small spot between the eyes and around the antennal insertion reddish brown, antennæ entirely yellowish; pronotum reddish-brown, anterior margin narrowly, two oblique basal spots connected at base and laterally widely yellow but the latter color interrupted by a narrow branch from the reddish brown discal color but not extending to the lateral margin; basal, lateral and anterior margins narrowly black; elytra yellow with three partly interrupted black narrow vittæ, the internal one occupying the space between the first and second row of punctures, the median one between the third and fourth row interrupted near its apex, the outer one interrupted twice, before and below middle.

Head sparsely punctate with moderate punctures; pronotum shining, finely and very sparsely punctulate, punctures almost invisible; elytra smooth, moderately shining, the first and second row of punctures united below middle, third and fourth united near apex, fifth and seventh united near apex and between them the sixth is represented by a few punctures, sutural row very short, consisting of from four to six punctures below the scutellum. Body below with white pubescence; anterior margin of prothorax very feebly lobed at middle; prosternum convex, at apex triangularly emarginate, apical angles acute and moderately prolonged; ventral segments moderately closely punctate; pygidium rather closely and coarsely punctate, less closely at apex and along middle carinate. Length: 5.25 mm.

Douglas, Arizona, Aug. (Snow).

Type and paratype in my collection and paratypes in the collection of the Kansas University.

This species was identified for the late Prof. Snow as my *simulans* but the latter is less elongate and a little more robust with the pronotum distinctly punctate, rather coarsely and closely so at sides, in the former there is also a more or less distinct additional black mark on the elytra situated between the very short scutellar striæ below the scutellum, which is never present in *snowi*, the short, elongate umbonal spot of the elytra is of equal width in its entire length in the latter species, but in *simulans* and varieties this spot is dilated inwardly at apex, forming a somewhat pipe-like pattern.

Cryptocephalus cowaniæ new species.

Slightly narrower than *badius,* dark brown with similar elytra markings, but the last interval is also flavous from base to the antemedian, oblique, pale spot, connected at base with the pale basal markings. The pronotum at apical margin is narrowly flavous, also laterally a large, somewhat quadrate, apical spot and below this a narrower, elongate one and two oblique basal spots flavous. The head flavous with an inverted V-like mark at middle. Prosternum, mesosternum and the first ventral segment between the coxæ yellow, on all the ventral segments laterally and each side near apex of pygidium a yellow spot.

Head rather closely punctate, pronotum sparsely and finely punctate. Elytral series of punctures rather coarse, the sixth and seventh row interrupted; the first and last row not confused at apex. Prosternum at base not lobed nor produced into a spine-like process; at apex feebly emarginate with the lateral angles feebly produced. Ventral segments of abdomen sparsely punctate and sparsely pubescent. Pygidium sparsely and moderately coarsely punctate and carinate at middle. Length: 4 mm.

Williams, Arizona, July, (Schwarz and Barber) taken on *Cowania stansburiana.*

Type and paratypes in the National Museum collection, paratypes in my collection.

The male has on each side of the apex of prosternum an erect sharp, spine-like process, which is of very unusual occurrence in *Cryptocephalus.*

The clypeus is rather parallel-sided and not or at most very feebly narrower at base than apex.

Some specimens have the markings of elytra as in *badius,* except that the last interval is basally for a short distance also yellow, but the majority of specimens have an additional oblique spot at about middle of the second to the fourth interval, which, however, is variable in size and occasionally reduced to a very small spot. Specimens of *badius* marked like these and with lateral, apical margins and hind angles of pronotum yellow are said by Dr. Leconte to occur but the narrower form of *cowaniae,* the parallel-sided clypeus and the erect spines on each side of the apical margin of prosternum of the male will readily separate the two.

Dr. Leconte in his table of the species of *Cryptocephalus** separated *schreibersi, tinctus, lateritius* and *striatulus* from the

* *Trans. Am. Ent. Soc.,* VIII, 1880.

rest of the species by having a very coarsely punctured pronotum, but as the punctuation in some of the other species is very variable, one following the table is apt to be misled by certain specimens of *aulicus, trivittatus* and others, which have a coarsely and densely punctate pronotum. However, there is a better and more reliable character to separate these from the rest of the species. In all our species except the four mentioned above and *incertus* the combined first and second row of elytral punctures unite clearly with the last at apex, in the other four and *incertus* the coalescens of the striæ at apex is interrupted and confused by a number of more or less coarse punctures on the intervals, which are absent in our other species.

The following are listed as doubtful without number at the end of the list of the species of *Cryptocephalus* in the Leng catalogue.

Cryptocephalus pseudolus Suffr.

I have very little doubt that this is *C. pumilus* Hald., which is very variable in coloration. The upper surface is either entirely pale, without markings or more or less distinctly marked on pronotum and elytra. The most fully marked specimen seen has a large, black, more or less M-like design on the pronotum and the fourth and sixth elytral intervals at base and slightly below middle, the second interval from base to not quite to middle and the suture black.

Cryptocephalus luscus Suffr.

This is a Diachus allied in coloration to *chlorizans,* but differs from the latter in being "bei fast gesicher Breite um die Hälfte kürzer," the pronotum slightly longer and the elytral punctures coarser and distinct to apex. It was described from Georgia.

Cryptocephalus geminatus Newn.

This is the same as *Bassareus lituratus vittatus* Suffr., which latter name being later proposed becomes a synonym of *geminatus* Newn.

Bassareus mammifer Newn.

Bassareus speciosus Melsh.

B. speciosus Melsh. is a plain synonym and not a var. of *mammifer.*

The markings in *mammifer* usually do not seem to vary very much though I have a few specimens from Great Falls, Md., (Shoemaker) which have on each elytron one or two additional yellow spots above the larger apical spot on the second and third interval as in *egenus* but the yellow median fascia is entire and as wide as in typical *mammifer* and one of the specimens has also an additional lateral subapical spot on the last two intervals.

Bassareus egenus Suffr.

This is listed as a variety of *mammifer* but it seems to me, judging from the description, to be a very small specimen of *formosus*. The markings on the elytra are apparently the same as in the latter species but on each elytron the outer of the two subapical spots of *formosus* is absent. I have a specimen from White Mills, Pa., which agrees fairly well with Suffrian's description in size and markings but with the lateral subapical spot present though more obscure than the rest of the markings.

Bassareus formosus confluentinus new variety.

Differs from typical *formosus* in having the markings of elytra confluent, forming either black, reddish brown or red and yellow more or less irregular, transverse fasciæ; prothorax more or less reddish; underside black or dark red; legs pale. Length: 4 mm.

Massachusetts; New York; Long Island and Van Cortlandt Park; Pennsylvania; White Mills.

This is var. α of Leconte's table but not *sulphuripennis* as given there, the latter is his var. β.

Nodonota basalis Jacoby.

Nodonota arizonica Schffr.

The rather full description of the female of the Mexican *Noda basalis* by Mr. Jacoby, the only sex known to him, agrees so very well with my *arizonica* that I have no doubt about the correctness of the above synonymy.

Euphrytus snowi new species.

MALE: Dark bronze, lateral margins of elytra and underside more or less metallic green, last ventral segment pale, legs and antennæ pale, except the last five or six of the latter black.

Head distinctly punctate with moderate punctures which are slightly more closely but not densely placed in the clypeal region; antennæ elongate,

reaching back beyond middle of elytra, outer five joints wider than inner and the last two more so then the three preceding joints. Pronotum nearly as wide as base of elytra, sides entire and arcuately narrowing from near base to apex, widest part about basal fourth; hind angles small, but distinct, anterior angles distinct but not prominent; punctures well separated on the disk, finer anteriorly and denser laterally. Elytra rather elongate, surface even, intervals not elevated, but slightly finely transversely rugose, especially apically; punctuation irregular but apically forming two or three more or less regular rows. Body beneath finely punctate; prosternum anteriorly truncate and very narrow between the coxæ; posterior femora rather suddenly dilated below at about middle and then gradually narrowing to apex, the external angle of the dilation acute and tooth-like. Length: 5 mm.

FEMALE: Differs from the male in shorter antennæ with the last joints not quite as wide, the hind femora simple, the last ventral segment not pale and as usual the first joints of anterior and middle tarsi narrower.

Arizona: Douglas, August, (Snow), Santa Rita Mts., July (Snow).

While the majority of specimens seen have pale legs they are darker in one specimen, four specimens have the upper surface blue and legs and antennæ dark but do not differ otherwise.

Paratypes of both sexes in the collection of Kansas University and a blue specimen in the collection of Mr. Chas. Liebeck. This species differs from *intermedius* in more elongate form, even, not subcostate elytral intervals, the dentate and in basal half strongly dilated hind femora of the male and the narrower prosternum. It is a typical *Euphrytus*.

Euphrytus parvicollis new species.

Piceous or brownish with a more or less distinct metallic gloss, pronotum more distinctly metallic, legs, including the tarsi, and antennæ pale, except the last and penultimate joint at apex blackish; body beneath more or less pale, metasternum and first three ventral segments of abdomen dark.

Head sparsely punctate with moderate punctures, which are more dense in the clypeal area; antennæ reaching backwards a little beyond the middle of elytra, the outer joints scarcely wider than the inner. Pronotum distinctly narrower than the elytra, sides entire, rather evenly but not strongly arcuate, a little more than apical third, then gradually narrowing to apex; apical angles rather distinct but not acute nor prominent, basal angles more or less acute but very small; surface finely not very closely punctate, punctures larger and more closely placed at sides. Elytra wider than prothorax, humeri distinctly exposed; intervals more or less convex, subcostate, stronger so apically and laterally; punctuation more or less confused basally but arranged between the costæ in irregular double rows of punctures gradu-

ally changing into a single row apically. Body beneath sparsely punctate; prosternum truncate at apex, very narrow between the coxæ; posterior femora short and moderately incrassate, simple not dentate. Length: 5 mm.

Arizona: Sta. Rita Mts., (Marsden), (Snow, June); Nogales (coll. Liebeck).

The Snow specimen, a paratype in the collection of Kansas University, has the underside entirely pale and a specimen in the collection of Mr. Chas. Liebeck from Nogales has the entire underside and legs dark. The latter is a female, the other two are males.

This species is very close to *intermedius* in almost all its characters but in *parvicollis* the prothorax is much narrower, the elytral humeri distinctly exposed, the antennæ almost entirely pale except the last two joints and the outer joints scarcely dilated and nearly the same as the inner joints.

Colaspis oregonensis Cr.

Doctor Horn in his table of the species of *Colaspis** separates *oregonensis* from *chrysis* only by color—blue, dull green or bronze in the former and bright green in the latter. However, bright green specimens of *oregonensis* occur also and may cause a little trouble as no other reliable characters are given in the descriptions to separate the two species. These bright green *oregonensis* do look very much like *chrysis* but the anterior angles of prothorax are prominent and drawn out more or less laterally into a small, subacute denticle and the apical margin of clypeus is arcuate-truncate, in *chrysis* the anterior prothoracic angles are not denticulate but narrowly rounded and the anterior margin of clypeus is more or less distinctly emarginate. Of *oregonensis* I have also a bright green specimen from Prescott, Arizona.

Colaspis arizonensis new species.

Size and form of *nigrocyanea;* elytra dark blue, scutellar area, pronotum, except the green lateral margins, and head which are dark bronze; antennæ, legs and underside black or piceous. Head moderately closely punctate, punctures denser in the clypeal region; antennæ reaching about the middle of elytra, outer joints slightly wider than the inner. Pronotum transverse, sides entire and arcuately narrowing from base to apex, apical and basal

* *Trans. Am. Ent. Soc.*, XIX, 223.

angles obtuse; surface rather densely punctate, punctures sparse at middle of apical margin and denser at sides. Elytra slightly wider than prothorax, irregularly punctate, punctures forming single rows apically, on the disk the punctures are smaller and more sparsely placed, denser and larger laterally. Body below shining, ventral segments dull, sparsely punctate; posterior femora moderately incrassate. Length: 5 mm.

Arizona, Cochise Co., (G. Franck).

I received a single female specimen of this distinct species from the late George Franck, possibly collected in the Huachuca Mountains by Biedermann from whom he received at one time material.

Compared with *nigrocyanea* it is of nearly the same form and size but with sides of pronotum entire and the punctuation of the latter and elytra is very different and consists of rather moderate sized punctures—very large, especially on the elytra, and more fovea-like in *nigrocyanea*. *C. moesta* Horn, from Lower California, judging from the description, has the pronotum more finely and less closely punctate and the elytra "vaguely subcostate near the apex," and in form is compared with *Rhabdopterus picipes* but larger and more robust.

C. arizonensis by its entire sides of pronotum and wider prosternum than usual is rather an aberrant *Colaspis* though *nigrocyanea* and one or two other species which also have a wider prosternum but otherwise belong in *Colapsis;* the undulate sides of pronotum are very vague or even absent in some specimens of certain species. The entire, not undulated, lateral margin of pronotum would rather place it in the *Iphimeitini* than in the *Colaspiini* but there is apparently no genus described in the former tribe where it could be safely placed. Mr. Jacoby in the "Biologia" places several new species with wider prosternum in his genus *Euphrytus* and one of these with not dilated hind femora as rather doubtful and the two species he places in *Coytiera,* a genus apparently closely allied to *Euphrytus,* are also not strictly congeneric. The *Eumolpinæ* appear to need tribal and generic revision with possibly the erection of a few new genera for some of these aberrant species, which would help greatly in their correct identification and lessen the existing confusion.

Colaspis nigrocyanea Horn

This species occurs also in Brownsville, Texas, but most of the specimens are not quite as dark as the Arizona specimens, though otherwise agree with the latter in every respect. Of all our *Colaspis* it is the most coarsely sculptured species and judging from the descriptions is so very close to the Mexican *dugesi* Lef. and *melancholica* Jac. that I suspect the three names refer to the same insect.

Colaspis viriditincta Schffr.

I described this as a variety of *brunnea* but it is a distinct species. It is a more slender insect, the elytral intervals are not very distinctly costate except at apex, but are very narrow and irregular, the first two near the suture are a little wider, the elytral punctures are larger and more crowded, nearly obliterating the very narrow costæ at base; the posterior tibiæ of the male are dilated internally at middle; the prothorax is narrower, less broadly rounded at sides and appears to be longer.

Colaspis viridiceps new species.

MALE: Narrower and more slender than *brunnea;* color above flavous, head, lateral margins of pronotum and underside metallic-green, legs pale; antennæ pale, except the seventh and last three joints black.

Head moderately closely punctate but very sparsely posteriorly. Pronotum distinctly sinuate and angulate laterally; anterior angles obtuse, posterior angles prominent, but small and acute; surface rather closely, but not densely punctate at sides, at middle sparsely. Elytra with seven intervals elevated, between these a double row of moderately large punctures, except the sutural, first and last, which have an entire, more or less regular, single row of punctures. Body below finely and sparsely punctulate; prothorax below at sides more coarsely punctate; prosternum rather very narrow between the coxæ. Length: 4 mm.

Arizona: Wheatfields near Globe (Duncan).

The metallic-green head, sides of pronotum distinctly sinuate and angulate, also the more slender form and the first two striae of elytra with a single row of punctures will readily separate this species from *brunnea* and allies. The Mexican *hypochlora* has the pronotum subangulate and is apparently close to *viridiceps* but the head in the former is pale and no variations in this respect are mentioned of this rather common and widely dis-

tributed insect, also all the elytral intervals are said to be geminate-punctate.

Colaspis crinicornis new species.

MALE: More elongate and slender than *brunnea* with wider and more sparsely punctured pronotum and posterior tibiæ medially dilated internally. Color above and antennæ flavous, except the last joint of the latter black, lateral margins of elytra darker with faint metallic tint; body below slightly darker, metasternum sub-metallic. Head not densely punctate, punctures well separated; antennæ with each of the last six joints carrying along the inner edge four or five erect, long hairs, besides the usual ones at apex of each joint. Pronotum transverse, its widest part nearly twice as wide as long; sides feebly angulate slightly behind middle, anterior angles distinct, though not prominent, posterior angles prominent but small; surface not closely punctate at sides, punctures well separated; elytra with intervals more or less distinctly elevated, between these are single and double rows of moderate punctures, of these the sutural, first and last row uniseriate, the others in part more or less uni- and biseriate. Body beneath sparsely punctate; prosternum nearly as wide as anterior coxa; hind tibiæ gradually, arcuately dilated internally. Length: 4.5 mm.

Brownsville, Texas, (O. Dietz).

The more elongate form, wider pronotum, slightly wider prosternum, the internally dilated posterior tibiæ, also the erect, rather long hairs on each of the last six antennal joints separates this apparently distinct species from the males of *brunnea* or var. *flavida*. In some males of *brunnea* a few of these have long hairs, besides the usual apical ones on the antennal joints, which can be seen in a certain light, but they are apparently never as plainly visible and not as long as in *crinicornis* and fewer in numbers.

The female is unknown to me.

Colaspis lata new species.

FEMALE: Larger and more robust than *brunnea* with four distinct, entire costae on each elytron, the intervals between these divided by feeble, narrow, longitudinal elevations, which are rather indistinct and more or less obliterated in about basal half or less. Color above flavous, elytral punctures more or less and lateral margin metallic green, seventh and last three antennal joints black; body below metallic green, except sides of prothorax and apex of last ventral segment and legs pale.

Head posteriorly sparsely punctate, between the eyes and clypeus more closely punctate. Pronotum in its widest part nearly twice as wide as long; sides feebly angulate; anterior angles obtuse, posterior angles very small;

surface moderately closely punctate on the disk but very dense and rather cribrately punctate at sides. Each elytron with four distinct entire costæ, the densely punctate intervals between these divided by feebly, narrow, costulate elevations, which are rather indistinct and more or less obliterated in about basal half or less, the moderately coarse and rather dense punctuation is arranged in more or less distinct geminate rows of punctures. Prosternum about as wide as each coxa; metasternum finely punctate, punctures on ventral segments sparser and larger, last ventral segment broadly arcuate at apex. Length 5 mm.

Nebraska: Harrison. Two specimens collected and given to me by my friend E. L. Bell together with other material from that locality. The larger and more robust form, the wide prosternum and the elytral sculpture separates this distinct species from any of the allied North American *Colaspis*.

Colaspis flavocostata new species.

MALE: Larger, more elongate and slender than the fully colored variety *costipennis* with the four distinct pale costate intervals of each elytron narrower. Color of upper and under surface metallic-green; legs antennæ, except the five outer joints which are black, the four costate elytral intervals and the more or less visible narrower elevations between the four, pale.

Head rather sparsely punctate. Pronotum in its widest part about one third wider than long, sides slightly sinuate; anterior angles distinct, posterior angles very small and slightly prominent; surface closely punctate, very densely so at sides. Elytra with four entire, but narrow, costæ, between these, still narrower subcostae elevations, which are more distinct at apex than at base; the punctuation consists of closely placed moderately coarse punctures, biseriately arranged, uniting near apex into a single row. Body below finely punctulate except prothorax at sides as usual with larger punctures; prosternum as in *brunnea*. Length: 4.75 mm.

Florida: Chipola Lake, April (Leonhard). 1927

In coloration, etc., this species is near *costipennis* but is a larger and more slender insect with narrower pale elytral costæ and denser elytral punctuation than in the latter variety.

The single female differs scarcely from the male except as usual, the pronotum is, however, of a somewhat golden-yellow color, with lateral and basal margins metallic-green.*

* While this paper was in the hands of the printer I saw a few specimens, in the collection of Mr. F. M. Schott, taken at Greenwood Lake, New Jersey, which agree, in every respect, with the Florida specimens. They were beaten from pitch pine.

Colaspis brunnea floridana new variety.

MALE: Above flavous, lateral margins of elytra metallic-green, elytral punctures and sutural interval more or less infuscate; below more reddish but legs and prothorax flavous; antennae pale, fifth and the last two joints black.

Head not closely punctate, punctures moderate and scarcely denser on clypeus. Prothorax about one fourth wider in its widest part than long along middle; sides arcuate, scarcely undulate or angulate; anterior angles obtuse, posterior angles distinct but obtuse; surface not closely punctate, punctures moderate in size, generally well separated and not denser at sides. Elytra with well defined costiform elevations, eight on each elytron, separated from each other by either uniseriate or biseriate rows of punctures, of these the last, the first and the sutural row are uniseriate, the latter two unite clearly near base, the others are partly uniseriate and partly biseriate but all are uniseriate near apex. Body below finely punctulate, prothorax, as usual more coarsely. Length: 4 mm.

Florida: Frt. Myers, August, (M. D. Leonard); Gainesville, July, (J. S. Rogers).

Paratypes are in the collection of Mr. H. Dietrich. This distinct form is readily separated from *brunnea* and its varieties by its larger prothorax and different elytral punctuation and the usually wider first and second interval. The first two elytral intervals are generally wider than the rest in the specimens which have most of the rows of punctures except the first two, almost entirely biseriate, other specimens in which some of these rows are nearly uniseriate the intervals are only slightly narrower than the first two; the first two rows of punctures, that is the sutural and first and the last in this form are always uniseriately punctate, in *brunnea* and varieties only the sutural row of punctures and the last are clearly uniseriately punctate.

Colaspis brunnea and its varieties are supposed to be very variable and according to Dr. Horn connected by intermediate specimens. I haven't seen any specimens which I would consider intermediate between *costipennis* and *brunnea* or its two other varieties and I believe that several more or less distinct forms will be found associated with *brunnea, flavipes* or *suilla* as defined by Dr. Horn when critically investigated.

Xanthonia pinicola new species.

Form of *villosula* but larger and elytral punctuation confused; elytra pale to dark brown, either uniform in coloration or marked more or less with

black; pubescence inclined, uniform. Pronotum darker, densely and confluently punctate. Underside more or less piceous, legs and the last two ventral segments often paler; punctuation of the ventral segments close, denser at sides and slightly finer on the last two segments. Length 4 mm.

Huachuca and Pinal Mts., Arizona, beaten from pine.

Type and paratypes in Nat. Museum collection, paratypes in my collection.

The punctuation of the elytra is somewhat variable, in a certain light, in some specimens the punctures appear to form regular rows. The pubescence of the elytra is uniform, inclined as in *vagans,* in *decemnotata* dual, consisting of inclined and erect hairs, in *villosula* the hairs are erect, forming single rows on the intervals.

The male has the last ventral segment of abdomen slightly and shallowly impressed at middle, on each side of the impression a more or less distinct tubercle and the anterior femora simple, not toothed nor even a feeble indication of it.

Fidia viticida texana new variety.

Larger than typical *viticida,* black, pubescence of upper surface longer, denser and coarser. Length: 7 mm.

New Braunfels, Texas.

Myochrous floridanus new species.

Form of *denticollis* with tridentate sides of prothorax but size generally larger, upper surface brown without metallic tint, variegated with ochreous and brown scales. Sculpture of prothorax rather coarsely and densely rugose; elytral punctuation coarser and more densely and irregularly placed than in *denticollis.* Body below metallic, legs castaneous, scales cinereous. Length: 5–5.75 mm.

Florida: St. Augustine, November, (Engelhardt); Rockbluff, April (Leonhardt).

Type and paratypes in Nat. Museum collection, paratypes in my own and Mr. Dietrich's collection, the latter is a small specimen from Rockbluff.

A small number of specimens show scarcely any variation except in size. The legs in this species are apparently always reddish, in *denticollis* metallic, at least the femora more or less and finely punctate with narrower and longer, more hair-like scales,

the latter in *floridana* are rather moderately coarsely punctate with shorter and slightly wider scales.

This species is closely related to the Cuban *M. dubius* F. of which I have, through the kindness of Mr. H. S. Barber, three specimens before me. These have the same pronotal sculpture as in *floridana,* but the upper surface of elytra and femora are distinctly metallic.

It is also related to *movallus,* from which it differs in coarser sculpture of prothorax and elytra, the latter dark brown shining without metallic tint and clothed with dark brown and ochreous scales.

Myochrous movallus Johnson.

Of this, more recently described species from S. Dakota, I have a single specimen from Atherton, Mo., which agrees in every respect with a paratype kindly given me by its describer, except that the scales of the upper surface are uniformly cinereous.

While the teeth at sides of prothorax are a little variable in all the species, they are apparently always very small and feeble and one or even two appear to be occasionally absent in *movallus.*

Myochrous pauxillus new species.

Form of *denticollis* but much smaller and pronotum not tridentate at sides but angulate below middle. Pronotum finely strigate-rugose and with cinereous small, narrow scales, which are not closely placed. The punctures of elytra are as in *denticollis,* that is, rather large and closely placed and the vestiture consists of small, narrow, cinereous scales, which are not dense and are easily abraded. Length: 3.75 mm.

Brownsville, Texas, (O. Dietz).

This small species appears to be close to *squamosus,* but the prothorax is wider anteriorly and distinctly angulate at sides below middle, the punctures of elytra are larger and more closely placed and the scales are narrower and not densely placed. The tooth on anterior tibiæ is very small.

KEY TO THE SPECIES OF MYOCHROUS ERICHSON

1. Pronotum at sides tridentate or occasionally bidentate in a specimen ... 2
   Pronotum at sides not dentate ... 7
2. Anterior tibiæ with a prominent acute tooth below middle ... 3
   Anterior tibiæ without acute tooth ... 6

3. Underside and legs reddish, generally larger and more slender than *floridanus* or *denticollis* ..... *magnus* Schffr.
   Underside metallic 4
4. Legs reddish without metallic tint, posterior femora rather moderately coarsely punctate, with short, white scales 5
   Legs entirely or at least the femora more or less metallic, the latter finely punctate; posterior femora with very narrow scale-like hairs, pronotum finely strigate-rugose ..... *denticollis* Say
5. Generally larger, prothorax rather coarsely and confluently punctate; upper surface without metallic tint with scales dark brown and ochreous ..... *floridanus* n. sp.
   Smaller, prothoracic sculpture as in *denticollis;* upper surface metallic with cinereous and paler brown scales intermixed or entirely cinereous. *movallus* Johnson
6. Smaller and more slender than *floridanus* and *denticollis;* scales denser and more persistent, underside metallic, legs reddish, femora occasionally faintly piceous; pronotum more distinctly punctate and scarcely rugose ..... *longulus* Lec.
7. Pronotum distinctly angulate at sides below middle; scales of upper surface narrow, elongate and easily abraded; punctures of ventral segments of abdomen larger and more closely placed, especially on the first segment ..... *pauxillus* n. sp.
   Pronotum not angulate at sides below middle; scales of upper surface rather broadly oval, dense and persistent; punctures of ventral segments of abdomen smaller and more widely separated..... *squamosus* Lec.

Metachroma coronadense Fall.

The single specimen described by Mr. Fall is apparently a male as my female, besides being a little more robust and larger than the male, differs in having the fifth elytral interval to about middle and the seventh to ninth from base to beyond middle strongly elevated. The male is closely allied to my *novemstriatus* but is smaller, with pronotal punctures finer and antennæ shorter.

Species with costate elytra in the female as in *Nodonota* are rather unusual in this genus and only one other to my knowledge has the elytra costate laterally, that is the Mexican *M. bipunctata* Jac., and though nothing is said about the sex of the specimen described it is very likely a female.

Chrysochus auratus F.

Of this common species, which is recorded only from the east, I have western specimens from Colorado: Jefferson Co., (Engel-

hardt); Arizona: Sierra Ancha Mts., (Duncan) and Prescott (Kunze); California: Sta. Clara Co., (Coleman). The Arizona specimens have the outer antennal joints more elongate than the eastern specimens.

Chrysochus cobaltinus Lec.

Specimens of this species were collected at Salt Lake City, Utah, by Mr. Wm. T. Bather and I have also a specimen from Jefferson Co., Colorado, collected by Mr. E. L. Bell. Besides the blue or greenish blue color, this species differs from *auratus* by having shorter and somewhat stouter antennal joints, especially the last four or five.

Colaspoides violaceipennis Horn

The description of the Mexican *Chrysodina purpureicollis* Jac. agrees so well with our insect that I suspect the two are the same. *Colaspoides* differs principally from allied genera—*Nodonota, Chrysodina,* etc., by the possession of post-ocular lobes of the prothorax below, which are absent in the genera mentioned above; in *violaceipennis* there are no post-ocular lobes. Besides the absence of lobes of the prothorax Dr. Horn separates *Chrysodina* from its allies by the pronotum having no basal marginal line, which is also the case in *Colaspoides;* therefore *violaceipennis* should have been placed in *Chrysodina* and not in the latter genus. Mr. Jacoby in the "Biologia" remarking on the difficulty of the characters suggests that the shape of the outer joints of the antennæ would be a valuable character in separating *Chrysodina* from *Nodonota.* These joints are short and almost transverse in the former genus and elongate in the latter, though in both they are dilated. The outer joints of the antennæ in *violaceipennis* are as suggested by Jacoby for *Chrysodina,* this and the prothorax below without lobes and in addition the clypeus not being triangularly emarginate does make it more possible that the two insects are the same. Our *Chrysodina globosa* has the outer antennal joints less abruptly dilated and more elongate.

Hydrothassa boreella Schffr.

Of this species, which was described from western Canada—British Columbia, Alberta and Manitoba—I have a specimen

from Danby, N. York, (E. G. Anderson) taken on *Caltha palustris,* May 14, and several specimens taken by Mr. F. M. Schott at Greenwood Lake, N. Jersey, May 17.

Labidomera suturella Chev.

I have a specimen, collected by O. C. Poling at Alpine, Texas, which seems to be this Mexican species. The head, pronotum, underside, legs and a narrow sutural vitta of elytra, which gradually widens toward apex, greenish-blue, elytra otherwise reddish without markings. The size about the same as our common *clivicollis.*

Calligrapha scalaris floridana new variety.

Smaller than typical *scalaris,* more shining and more finely and sparsely punctate, color of pronotum and elytral markings rather olive green. Length: 7–8.25 mm.

Lake Okeechobee, Florida (Blatchley).

This is what the late Frederic Knab had labelled "rhoda var. floridana." It is of the same size as *rhoda* and has the same markings but it has only one clearly defined, rounded subbasal spot within the subhumeral arcuate stripe as in typical *scalaris,* while *rhoda* has two spots and has the elytra more coarsely punctate. The two subbasal spots of *rhoda* are occasionally confluent, forming one large spot, but then apparently always of irregular outline and generally divided by a row of punctures. These subbasal spots in *scalaris, philadelphica* and allied species are less variable than the rest of the elytral markings and are valuable in separating closely allied species.

Calligrapha vicina new species.

Form and size of *philadelphica.* Head and pronotum metallic green, the latter more shining than in *philadelphica,* legs, antennæ and palpi reddish. Elytra pale, markings metallic green, consisting of a heavy humeral lunule which encloses two, more or less linear, spots, suture and subsutural intervals dark metallic green, the latter behind middle narrowly pale for a very short distance, an arcuate stripe, next to the metallic suture, broadly interrupted at middle, on the disk numerous small spots of variable size and an isolated median spot near lateral margin. Elytral epipleuræ pale with outer margin reddish. Length: 8 mm.

Olcott, New York (H. Dietrich), and one labelled Genessee Co. A paratype in the collection of Mr. Dietrich.

This species is heavier marked than *philadelphica* with sutural and subsutural interval more or less metallic green and is therefore apt to be confused with *amelia* or its var. *confluens,* but these have only one, more or less rounded subbasal spot enclosed by the humeral lunule, while *vicina* has two more or less linear spots and the pronotum in *amelia* and var. is more shining. It is more closely allied to *spiraeæ* but is larger and slightly more robust and the two subbasal spots are generally larger and more elongate, especially the outer, in *spiraeæ* the two subbasal spots are usually small and more or less rounded.

Calligrapha alni Schffr.

This species extends further south than recorded. Mr. Dietrich has taken it at E. Aurora, N. Y., and Mr. Shoemaker at Ramsey, N. Jersey.

Calligrapha apicalis Notm.

I have a specimen of this species from Canada. It was described and so far only recorded from northern New York.

Calligrapha verrucosa Suffrian

This is not a synonym of *multipunctata* but a distince species. It is always larger and slightly more elongate, with elytra more densely punctate and the two intervals next to the suture largely red, but never with a dark sutural line as in typical *multipunctata.* The markings on elytra are always black—more or less metallic green in *multipunctata*—and frequently strongly elevated.

Say confused this species with his *multipunctata,* it is his var. a.

Calligrapha multipunctata Say.

This is a very variable insect. Typical *multipunctata* have the underside and markings on prothorax red, which latter consist of an arcuate line interrupted at middle, basal margin at middle and a spot below the arcuate line. However, the color of the underside, also markings on pronotum, are variable and in the latter become gradually confluent and darker, of which the extreme form with pronotum dark metallic but apical margins and sides pale is var. *bigsbyana* Kirby.

Calligrapha multipunctata var. **suturella** new variety.

Similar to var. *bigsbyana,* that is, pronotum dark metallic green with pale anterior and lateral margins, markings on elytra slightly heavier than usual but sutural and subsutural intervals entirely metallic green. Length: 7.5 mm.

Claremont, New Hampshire (R. P. Dow).

As the markings of related species are variable to a certain extent, this new variety may be mistaken for a variation of *apicalis* Notm. on account of the entirely green sutural and subsutural intervals but the latter belongs to the group of species which have a dark spot at middle of last elytral interval, which is always absent in *multipunctata* and its varieties *bigsbyana* and *suturella.*

Calligrapha lunata Fab.

If the two color phases, *lativittis* and *medionota,* are admitted to our list then two more have to be recognized.

When Achard described these two varieties he named a third one, *bowditchi,* which is overlooked in our list. Achard did not see a specimen of the latter but proposed the name for the "form of *lunata*" mentioned and described, but not named, by Bowditch in Trans. Am. Ent. Soc., XXXVII, 1911, p. 326. Of this form Bowditch had two specimens, one from Marion, Mass., and the other from Mexico, but the latter locality is open to doubt as *lunata* does not occur in Mexico. The three specimens I refer to the variety *bowditchi* are from Casco Bay, Maine; one of these is typical, the other two nearly so, having the wide, red lateral vittæ at apex not entirely connected with the red sutural vitta.

The other variety is *hybrida* Say, which is at present listed in our Catalogue as a synonym of *lunata.* It is apparently a good western race as all the specimens seen are from Colorado, Nebraska and Manitoba. In this variety the wide, lateral red vitta on each elytron of typical *lunata* is broken up into three narrow vittæ of which the inner one is often very irregular and confused.

While the pronotum is generally unicolorous reddish in the typical form and all the varieties one of my Colorado specimen has the anterior angles widely flavous.

Calligrapha elegans californica Linell.

This variety, recorded only from California, has been taken at Coeur d'Alene, Idaho, by Mr. Notman.

Chrysomela basilaris Say.

This species is evidently wrongly identified by Crotch, 1873, Linell, 1896, and apparently by everybody following the two authors.

According to Say's description this species is green, very slightly glossed with violaceous and the lateral margin of pronotum **much** thickened. This latter expression he also uses in his description of *auripennis* but not of *flavomarginata* of which he only says "lateral margin (of pronotum) thickened." Accordingly the lateral margin of pronotum in *basilaris* is the same as in *auripennis,* that is, the marginal groove of pronotum is entire and the specimens identified by Crotch and Linell as *basilaris* are *flavomarginata* with unicolored elytra (var. *vidua* Rog. of which *subseriata* Lec. is a synonym) in which the marginal groove of pronotum does not reach the apex.

I have a specimen from Yellowstone Park, Wyoming, and have seen another from Sioux Co., Nebraska, which agree well with Say's description of *basilaris.* This species by its unicolored, shining green, upper and under surface, including the legs and its entire marginal groove of pronotum, will be easily known from any of our species of *Chrysomela* except possibly *inornata* of which I am not certain. A specimen from the Gap, Alberta, in coll. Hopping, which has the upper surface bluish black with very faint greenish reflections, underside and legs slightly paler bluish green which is possibly *inornata* and except darker coloration and slightly more closer punctuation of pronotum and elytra this specimen hardly differs from the bright green Wyoming specimen which I take to be Say's *basilaris.*

Chrysomella auripennis cyanea new variety.

Slightly more elongate than typical *auripennis* but entirely dark blue above and below. Length: 7–10 mm.

Arizona: Huachuca Mts., Sta. Rita Mts., Superstition Mts., Flagstaff, and Williams; S. W. Utah; New Mexico.

Type and paratypes in Nat. Museum collection, paratypes in my collection.

I have seen a great number of specimens of *auripennis* from Texas and further north and east, and while the color of elytra varies a good deal from reddish cupreous to dark green not a single specimen from these localities had the elytra entirely blue. On the other hand, all the specimens I collected in the Huachuca Mts., Arizona, or have seen from the localities mentioned above were entirely blue and as these blue specimens have been mistaken for *inornata* especially by those using Linell's key it is advisable to give it a name.

The variety *cyanea* differs from what I take to be *inornata* by having the sides of pronotum from a little below apical to basal angles more or less divergent—in *inornata* slightly convergent—the elytral punctures are of uniform size forming irregular rows and the intervals are almost without punctures, only a few very small punctures may be seen here and there—in *inornata* the punctuation is denser, consisting of rather numerous larger and some smaller punctures.

The variety *cribraria* is black, feebly bronced above and below with a slight bluish tint at sides of metasternum and inhabits the southeastern States.

Phyllodecta americana pallipes Schffr.

Of this variety I have specimens from the Catskill and Adirondack Mts., N. Y., and one from Alaska. The color in these is metallic green.

Lina interrupta F.

This species is apparently more variable in certain localities than it is in others. In a small number of specimens received from Mr. Musgrave and collected by him at Fairmount, W. Va., the majority were typical but showing more or less variation in reduction or extension of elytral markings. A few were var. *quadrimaculata* and one was an aberration of var. *æneicollis*. This latter, as in typical *æneicollis*, has the pronotum uniformly metallic black, the elytra pale, humeral umbo, a transverse moderately wide fascia which at middle is rather strongly constricted on each elytron, also a transverse subapical spot, suture and a sutural spot at apex black.

Melasomida arizonica Cr.

This species occurs also at Alpine, Texas; it is so far only recorded from Arizona and Mexico.